

Listing of Claims

1. (Withdrawn) A method of making a surface covering which comprises the sequential steps of:
 - (a) applying over a substrate a plastic layer containing a foaming agent,
 - (b) heating the plastic layer to a temperature which gels the plastic layer without activating the foaming agent to form a gelled plastic layer having a surface,
 - (c) applying to the surface of the gelled plastic layer a first printing ink containing a photoinitiator in a first pattern or a first design,
 - (d) applying to the surface of the gelled plastic layer a second printing ink containing a photoinitiator and an expansion inhibitor in a second pattern or a second design,
 - (e) applying a curable coating over the gelled plastic layer and the first and second printing inks,
 - (f) gelling the curable coating,
 - (g) heating to soften the gelled curable coating,
 - (h) mechanically embossing the softened curable coating,
 - (i) activating the photoinitiator and curing the surface areas of the curable coating disposed over the first and second printing inks,
 - (j) heating to activate the foaming agent and fuse the curable coating, the plastic layer and the substrate together, wherein foaming of the plastic layer

underlying the second printing ink is inhibited, and the mechanical embossing in surface areas disposed over unprinted areas is relaxed,

(k) optionally mechanically embossing the curable coating in areas that are not disposed over the first and second printing inks.

2. (Withdrawn) The method of claim 1 wherein the curable coating is cured following fusion by subjecting the surface covering to electron beam radiation.

3. (Withdrawn) The method of claim 2 wherein the surface covering is subjected to electron beam radiation following mechanical embossing in step (k).

4. (Withdrawn) The method of claim 1 wherein the curable coating contains a thermal crosslinking initiator and the curable coating is cured by heat during fusion.

5. (Withdrawn) The method of claim 1, further comprising applying a polyurethane coating after optionally mechanically embossing.

6. (Withdrawn) The method of claim 1, wherein the surface covering is selected from the group consisting of sheet flooring, tile and wall covering.

7. (Withdrawn) The method of claim 1, wherein the surface covering is cooled prior to heating to soften the gelled curable coating.

8. (Withdrawn) The method of claim 1, wherein the surface covering is cooled and then the surface is reheated to soften it prior to optionally mechanically embossing.

9. (Withdrawn) The method of claim 1, wherein after gelling the plastic layer the surface covering is cooled prior to applying the printing ink.

10. (Withdrawn) The method of claim 1, wherein said curable coating contains a thermal crosslinking initiator.

11. (Withdrawn) The method of claim 7, wherein said thermal crosslinking initiator is peroxide.

12. (Withdrawn) The method of claim 8, wherein said curable coating contains solid particulates.

13. (Withdrawn) The method of claim 1, further comprising applying one or more than one additional printing ink(s) to the surface of the gelled plastic layer.

14. (Withdrawn) The method of claim 13, wherein one or more than one of said additional printing ink(s) contains a photoinitiator.

15. (Withdrawn) The method of claim 13, wherein one or more than one of said additional printing ink(s) contains an inhibitor.

16. (Withdrawn) The method of claim 14, wherein one or more than one of said additional printing inks containing a photoinitiator also contains an inhibitor.

17. (Withdrawn) A method of making a surface covering which comprises the sequential steps of:

- (a) applying a plastic layer over a substrate,
- (b) heating the plastic layer to a temperature which gels the plastic layer,
- (c) applying a printing ink containing a photoinitiator onto the gelled plastic layer in a pattern or a design,

- (d) applying a curable coating over the gelled plastic layer and the printing ink,
- (e) gelling the curable coating,
- (f) heating to soften the gelled curable coating,
- (g) mechanically embossing the softened curable coating,
- (h) activating the photoinitiator and curing the curable coating disposed over the printing ink,
- (i) heating to cure uncured portions of the curable coating and fuse the thereby cured coating, the plastic layer and the substrate together.

18. (Withdrawn) The method of claim 17 further comprising mechanically embossing the cured coating in areas that are not disposed over the printing ink.

19. (Withdrawn) The method of claim 17, further comprising applying a polyurethane coating after mechanically embossing the cured coating that is uncured.

20. (Withdrawn) The method of claim 17, wherein the surface covering is selected from the group consisting of sheet flooring, tile and wall covering.

21. (Withdrawn) The method of claim 17, wherein the surface covering is cooled prior to curing the curable coating.

22. (Withdrawn) The method of claim 17, wherein the surface covering is cooled following curing the curable coating.

23. (Withdrawn) The method of claim 17, wherein after gelling the plastic layer the surface covering is cooled prior to applying the printing ink.

24. (Withdrawn) The method of claim 17, wherein said curable coating contains a thermal crosslinking initiator.

25. (Withdrawn) The method of claim 17, wherein said thermal crosslinking initiator is peroxide.

26. (Withdrawn) The method of claim 17, wherein said curable coating contains solid particulates.

27. (Withdrawn) The method of claim 17, further comprising applying one or more than one additional printing ink(s) onto the gelled plastic layer before applying said curable coating.

28. (Withdrawn) The method of claim 27, wherein one or more than one of said additional printing ink(s) contains a photoinitiator and/or an inhibitor.

29. (Withdrawn) The method of claim 17 wherein the curable coating comprises a curable acrylic monomer and/or oligomer.

30. (Withdrawn) The method of claim 17 wherein the plastic layer contains a foaming or blowing agent, one or more than one printing ink(s) further contains an inhibitor, heating to gel the plastic layer is not sufficient to activate the foaming or blowing agent, and heating in step (i) is sufficient to activate the foaming or blowing agent and relax the mechanical embossing in surface areas disposed over areas not printed with an ink comprising a photoinitiator.

31. (Cancelled)

32. (Cancelled)

33. (Currently Amended) A surface covering which comprises:

- (a) a substrate,
- (b) a foamed plastic layer overlaying the substrate,
- (c) a first ink containing a photoinitiator printed in a design on said foamed plastic layer, optionally a second ink containing an inhibitor printed in a design on said foamed plastic layer and, optionally, a third ink which does not contain an inhibitor or photoinitiator printed on said foamed plastic layer,
- (d) a cured coating or a cured layer containing a crosslinkable photopolymer or monomer overlaying the foamed plastic layer and first ink wherein the portion of the cured coating or the cured layer disposed over the first ink is mechanically embossed with a UV cured first mechanically embossed texture having relatively deep emboss depths as compared with a matting grain and the portion of the cured coating or the cured layer disposed over the optional second ink is chemically embossed,

wherein the portion of the cured coating or cured layer which is not disposed over the first ink and the optional second ink is mechanically embossed with a second mechanically embossed texture different from the first mechanically embossed texture.

34. (Cancelled)

35. (Cancelled)

36. (Cancelled)

37. (Withdrawn) A method of making a surface covering which comprises the sequential steps of:

- (a) applying over a substrate a plastic layer containing a foaming agent,
- (b) applying to the surface of the plastic layer a first printing ink containing a photoinitiator in a first pattern or a first design,
- (c) applying to the surface of the gelled plastic layer a second printing ink containing a photoinitiator and an expansion inhibitor in a second pattern or a second design,
- (d) applying a curable layer over the plastic layer and the first and second printing inks,
- (e) heating to soften the curable layer,
- (f) mechanically embossing the softened curable layer,
- (g) activating the photoinitiator and curing the surface areas of the curable layer disposed over the first and second printing inks,
- (h) heating to activate the foaming agent, cure uncured portions of the curable layer, wherein foaming of the plastic layer underlying the second printing ink is inhibited, and the mechanical embossing in surface areas disposed over unprinted areas is relaxed,
- (i) optionally mechanically embossing the cured coating in areas that are not disposed over the first and second printing inks.

38. (Withdrawn) The method of claim 37, further comprising applying a polyurethane coating after optionally mechanically embossing.

39. (Withdrawn) The method of claim 37, further comprising applying additional printing ink(s) after application of said second printing ink and before applying said plastisol coating.

40. (Withdrawn) The method of claim 37 wherein the plastic layer is applied as a liquid followed by heating the plastic layer to a temperature which gels the plastic layer without activity the foaming agent to form a gelled plastic layer having a surface.

41. (Withdrawn) The method of claim 37 wherein the plastic layer is adhered over the substrate.

42. (Withdrawn) The method of claim 41 wherein the plastic layer is adhered by laminating.

43. (Withdrawn) The method of claim 37 wherein the curable layer is applied as a liquid followed by gelling the curable layer.

44. (Withdrawn) The method of claim 37 wherein the curable layer is adhered over the plastic layer and the first and second printing inks.

45. (Withdrawn) The method of claim 44 wherein the curable layer is adhered by laminating.

46. (Cancelled)

47. (Previously Presented) The surface covering of claim 33 wherein the second mechanically embossed texture is selected from the group consisting of ceramic tile, stone, brick, sandstone, cork, wood and combinations thereof.

48. (Cancelled)

49. (Cancelled)

50. (Currently Amended) A surface covering which comprises:

(a) a substrate,

(b) a foamed plastic layer overlaying the substrate,

(c) a first ink containing a photoinitiator and an inhibitor printed in a design on said foamed plastic layer, optionally a second ink containing an inhibitor printed in a design on said foamed plastic layer and, optionally, a third ink which does not contain an inhibitor or photoinitiator printed on said foamed plastic layer,

(d) a cured coating or a cured layer containing a crosslinkable photopolymer or monomer overlaying the foamed plastic layer and first ink wherein the portion of the cured coating or the cured layer disposed over the first ink is i) mechanically embossed with a UV cured first mechanically embossed texture having relatively deep emboss depths as compared with a matting grain and ii) chemically embossed and the portion of the cured coating or the cured layer disposed over the optional second ink is chemically embossed,

wherein the portion of the cured coating or cured layer which is not disposed over the first ink and the optional second ink is mechanically embossed with a second mechanically embossed texture different from the first mechanically embossed texture.

51. (Currently Amended) A surface covering which comprises:

- (a) a substrate,
- (b) a foamed plastic layer overlaying the substrate,
- (c) a first ink containing a photoinitiator and an inhibitor printed in a design on said foamed plastic layer, optionally a second ink containing an inhibitor printed in a design on said foamed plastic layer and, optionally, a third ink which does not contain an inhibitor or photoinitiator printed on said foamed plastic layer, and a fourth ink containing a photoinitiator,
- (d) a cured coating or a cured layer containing a crosslinkable photopolymer or monomer overlaying the foamed plastic layer and first ink wherein the portion of the cured coating or the cured layer disposed over the first ink is chemically embossed and is mechanically embossed with a UV cured first mechanically embossed texture having relatively deep emboss depths as compared with a matting grain; the portion of the cured coating or the cured layer disposed over the optional second ink is chemically embossed and the mechanically embossed portion of the cured coating or the cured layer that is not disposed over the first ink is smoothed over

wherein the portion of the cured coating or cured layer which is not disposed over the first ink, the optional second ink and the fourth ink is mechanically embossed with a

second mechanically embossed texture different from the first mechanically embossed texture.

52. (Currently Amended) A surface covering which comprises:

- (a) a substrate,
- (b) a plastic layer overlaying the substrate,
- (c) a first ink containing a photoinitiator printed in a design on said plastic layer and an optional third ink not containing a photoinitiator printed on said plastic layer,
- (d) a cured coating or a cured layer containing a crosslinkable photopolymer or monomer overlaying the plastic layer and the first ink and optional third ink wherein the cured coating or the cured layer overlaying the first ink is mechanically embossed with a UV cured mechanically embossed texture having relatively deep emboss depths as compared with a matting grain,

wherein the portion of the cured coating or cured layer which is not disposed over the first ink is mechanically embossed with a second mechanically embossed texture different from the first mechanically embossed texture.

53. (Cancelled)

54. (Previously Presented) The surface covering of claim 33 further comprising a polyurethane coating overlaying the cured coating or cured layer.

55. (Cancelled)

56. (Previously Presented) The surface covering of claim 50 further comprising a polyurethane coating overlaying the cured coating or cured layer.

57. (Previously Presented) The surface covering of claim 51 further comprising a polyurethane coating overlaying the cured coating or cured layer.

58. (Previously Presented) The surface covering of claim 52 further comprising a polyurethane coating overlaying the cured and embossed cured coating or cured layer.